

NEOTYPE: REPLACE WHAT IS LOST

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May, 2023

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ABSTRACT

“Neotype: Replace what is lost” is a photographically based project aimed at exploring the intersection of Art and Science by using historical photographic techniques to celebrate and memorialize our insect partners. This thesis documents the development of the artist/scientist as he creates different bodies of work during his MFA. The final exhibition centers on the questions of how we know the world and creates a ritual that asks the observer to engage with insects as both objects of wonder and as creatures that are disappearing from our rapidly changing world.

Neotype: Replace what is lost

A Thesis

Presented to the Faculty of the School of Art and Design
East Carolina University

In Partial Fulfillment of the Requirements for the Degree
Master of Fine Arts

By

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May, 2023

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ACKNOWLEDGEMENTS

I'd like to first thanks Daniel Kariko for taking the time to chat with a biology professor who fancied himself an artist. Angela Wells for challenging me to play and opening the world of Alt process. Tim Lazure for his absence.....for if I'd known him earlier I may never have finished my photography concentration...I would have switch to metals. Maybe I'll come back and do both. Gerald Weckesser for his endless well of common sense helping me navigate the MFA program. Epiphany for showing me what hustle was. My Ex for preventing me from making art all those years. The pent-up need was immense. Mostly my soulmate Kim. She has been there with me through all my doubts, unconditionally loved me for my obsessions, and is the first person to ever see all of me.

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INTRODUCTION

In contemplating what I wanted to share with this document I struggled with the tension between my scientific training and the “play” that I’ve rediscovered as a practicing artist. In some ways the tension mirrors the value judgments we place on different realms of inquiry. Science is often viewed the engine of innovation leading to future commerce and art is viewed, by some, as a distraction for rich or retired people or young ones who could not “cut it” in the fields that lead to “gainful” employment. I will admit that in a small sense I started this journey as a distraction during a difficult transition in my life. However, the larger motivation was to learn how to know the world and myself differently from the purely scientific point of view I had been saturated in since my undergrad days. I needed a change. I needed to feel the world. I needed to break out of scientific myopia.

In a traditional scientific thesis, there is always a lie. Almost always, the text presents a logical hypothesis driven narrative. The researcher has a hypothesis, tests the hypothesis, and fails to refute the hypothesis. The reader is left in awe that such smart and efficient people exist. Moreover, they come away with the false impression that science is linear. In fact, it rarely is. Usually it consists of many “rational” stabs in the dark that eventually are coalesced into a story that can be put before peer reviewers and published. To be certain there are examples of science that are linear...but these, in my experience, are rare. In failing to share the messy nature of scientific inquiry there are two opposing side-effects. First, many view science as infallible and do not understand that science is merely an oscillation toward “truth” that

takes time. Secondly, the hubris of the scientist results in irrational skepticism of science. Science and scientists are perceived as looking down on other members of society. A natural response by those that are judged is to respond in kind. We see this as central to many of the divides in our society today (Sandel).

In this thesis I will not present a linear story. I will touch on many of the different bodies of work I have generated along the way. All these stabs in the dark move me closer to understanding a different way of knowing. A more expansive view that allows me to begin to cherish more and judge less. Coalescing into a single theme is the idea of the Neotype. One cannot understand a neotype unless one knows about a "Type Specimen". This is the physical specimen of a species that is housed in a museum. This one specimen is the archetype for that entire species. All subsequent specimens for that species that are collected are compared to this one individual. If this individual is lost it can be replaced by a Neotype. In replacing what is lost the science of discovery can continue. For me the process of working through my MFA and creating different bodies of work becomes a replacement for what has been lost. I become my own Neotype.

CHAPTER 1: ESCAPE INTO DARKNESS

“We live in a small corner of one galaxy in a universe containing 1 trillion galaxies. Standing on a sphere spinning at more than 1000 miles per hour. The night skies are full of vistas unseen by the naked eye. The clash of energy and matter create displays of glowing gas and the dust of dead stars. Trained as a scientist I spend nights collecting “data” as images of objects in deep space. I then take what the computer and camera can “see” and transform it into an image that the human eye can discern, and the mind can contemplate. I am amazed at how small we are. Feeling that smallness inspires me to think about what we are in the larger context of the universe.”

Research and Creative Achievement Week (RCAW), Tim Christensen, 2018



Figure 1. Orion and Running Man Nebulae

This two-panel mosaic spans the Orion and Running Man nebulae found in the sword of the Orion constellation. These are among the brightest nebulae in the sky. This is one of our nearest star-forming regions at 1400 light years away. The red colors are from the emissions of excited hydrogen atoms, and the blues are the reflected light of super-hot stars.

TECHNICAL DETAILS:

Photons captured in Simpson, North Carolina, in November 2014. The image is 2 stitched panels collected over a total of 8.4 hours exposure time.

The journey began with the need for escape. Escape from the confines of

knowing only through science and escape from the confines of a toxic relationship. Into the night, alone, distracting myself by contemplating the nameless expanse while at the same time trying to replace the wonder of my childhood with the wonder of the night sky. I built these images frame by frame collecting photons in 20-minute intervals and stacking them together to reveal the faint structures of the universe. All the while I stayed “true” to the “data.” Carefully calibrating the colors using known reference stars and mathematically removing “noise.” The images I produced were beautiful and “accurate.” These were a testament to my training as a scientific technician but revealed little about my universe or the transformation I needed.

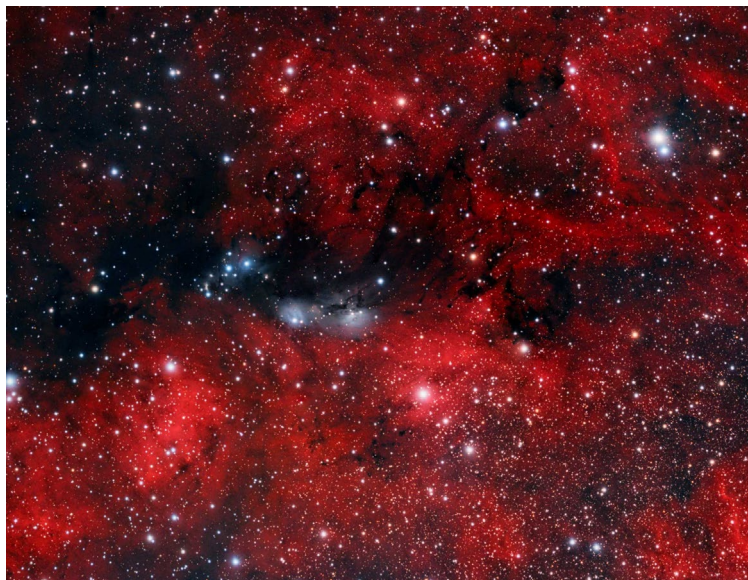


Figure 2. Dust, Glow & Reflection: NGC2170

Dusty nebula NGC 2170 shines with the glow of excited hydrogen and reflects the light of nearby hot stars. Several other nebulae in the frame participate in the same cosmic dance. This massive star-forming molecular cloud is in the constellation of the Unicorn (Monoceros) at 2,400 light years away.

TECHNICAL DETAILS:

Photons captured in Simpson, North Carolina, in the fall and winter of 2016. Exposures for this 4-panel mosaic were collected over a total of 31.6 hours.



Figure 3. Bode's Galaxy

This spectacular spiral galaxy is about 12 million light-years away in the constellation Ursa Major. At its center is a super-massive black hole that is 70 million times more massive than our sun.

TECHNICAL DETAILS:

Photons captured in Simpson, North Carolina, in February and March 2015 and again in the spring of 2016. This exposure was collected over a total of 20.2 hours.

CHAPTER 2: DARKNESS MADE LIGHT

“Whenever we remember we destroy the past. The very neurological act of recall necessitates re-encoding the memory in a way that writes over the original. Our recollections and re-codings are colored by recent events in our lives and our current mental states. We change the past by seeing it in a new way. Each time an image is recorded it becomes the past. These digital memories remain true each time they are viewed. The same zeros and ones, each time. We, however, do not remain true. Our perceptions change with hindsight. We can become victims or architects of revisionist histories by changing how we “choose” to relate to these images of the past. In dealing with the dissolution of a 30-year relationship and the fracturing of a family, I have this choice. Thousands of pictures can become colored by pain or remembered with more gratitude. I sifted through the thousands of images of my children and chose a select few. In these I have removed the black and replaced it with Cyanotype blue. The blue is developed by exposure to the sun. Blue is the color of darkness made light.”

Research and Creative Achievement Week (RCAW), Tim Christensen, 2019

Astrophotography was my first step on to replace my scientific self with the child of wonder. Alternative process photography was the next step in helping me understand that I needed to replace my memories lost to pain with memories touched with light. I needed to do this before I could rediscover play. There was a real fight about ownership of the images of my family during my divorce. Thankfully digital images make this easier, simply copy them onto a hard drive. This left me with the question of: “What was I fighting for?” I needed to review these images and recode them somehow so I could move forward. To this end I was inspired by the work of Aspen Hochhalter and her “Alt + Ink - Instagram by Hand...” portfolio where she repurposed Instagram photos to merge cyanotype with digital (Hochhalter). Using her work as a starting point and engaging her to get some technical details I developed my own protocol through extensive trial and error (Appendix A).



Figure 4. Cyanotype over digital print. First panel: print with black channel removed. Second panel: with the addition of cyanotype solution. Third panel: right after exposure to sunlight. Last panel: the developed final image.

CHAPTER 3: OBJECTS OF RE-ORGANIZATION

Having lost my astrophotography gear to the necessities of divorce and using my art to transform my memories of my children I was ready to play. I returned to the collections I'd made over the years to replace my lost memories with a new examination.

Tim Christensen

Circa late 2018

We drill holes to reveal the past. Plumbing the depths to pull up cores of earth. Some layers uncover the gentle passing of rainy seasons and others the cataclysms that fracture the land. Layer upon layer the story unfolds compressing the past into hard stone.

We are made of these same stories. The passing of a year without notice and the days of cataclysms or joy forms the layers that define and sometimes smother. Exploration demands drilling. The drill finds its way to the center but can also exit in unexpected places. The cylinder that is pulled out is subjected to the microscope in the hunt for minute memories. Cataloging the small reveals the arc of the whole.

A few will forever inhabit the sedimentary. A polished unexamined sphere. Others will be broken by the trajectories of the unforeseen. While still others will feel the weight of the accumulated stories and erupt. Layered stone fractured and thrown into space. Each a part of the old sequence jumbled by gravity and will, glued into a new whole. The cycling of exploration and upheaval create new stories of the past and new cores that define self.

My current practice as an artist is an examination of these concepts as viewed

through multiple lenses, my background as a scientist, the ending of a story, and a new start. As a scientist I collect objects as a critical step in the scientific method. The act of defining characters used to categorize these objects is a formal and constrained act of observation. Comparing similar objects in order measure how they deviate from the norm. The sum of these deviations and similarities can reveal a deeper truth underlying the universe. Collection, categorization, documentation, and close observation is the formula to reveal these unseen stories. In the 1700s Carl Linnaeus (Charmantier) became the father of modern taxonomy. He collected massive numbers of plant specimens from around the world and developed a classification system that we still use to this day. His fastidious collection and documentation of these specimens uncovered the truth that all living things are related to each other. A revolution long before the discovery of inheritance and the universality of DNA. Linnaeus' ground-breaking methods have been used repeatedly from paleontology to molecular genetics. The formula works to reveal objective truth.

As a primate I am less constrained. The objects I collect are connected to moments in time. Each object compelled me to pick it up, hold it, and keep it. The unforeseen conditions that led to that moment of encounter and possession are cataloged within the context of the layered stories that make up a life filled with curiosity. Photographing these objects at high-resolution satiates my need to examine that curiosity and revisit a moment in the past. Putting these objects together assembles a complex story. Sometimes that story is grounded in certainty. Other times the story has yet to reveal itself. The stories that come to consciousness are a product of the present interacting with imperfect memory. Perhaps as Rebecca Solnit

put it; “Memory... is a shifting, fading, partial thing, a net that doesn't catch all the fish by any means and sometimes catches butterflies that don't exist.” (Solnit). My objects are the physical manifestations of these memories, some will turn out to be butterflies.

“Stories are compasses and architecture, we navigate by them, we build our sanctuaries and our prisons out of them, and to be without a story is to be lost in the vastness of a world that spreads in all directions like arctic tundra or sea ice.”
Rebecca Solnit, *The Faraway Nearby*.

Putting things back together. The story that ends and begins another. At the end of an era dominated by stories that bound me to a narrative dictated by another, I re-invent myself. The layers of memory that compressed and confined are fractured and floating, raw material for a new sphere. Each moment, an object. Examined closely. Placed in a category. Many together creating a new whole. The objects I categorize, and document are surrogates for the process I am going through in putting the story back together. They reach back to the past and speak new words for the future. Creating new jumbled layers. There is no formula that works for subjective truth, only trial and error.

Clearly my voice as an artist is still developing. I do not benefit from a Bachelor of Fine Arts degree. I am naïve. I am largely untrained. I am probably unqualified. What little I know is the product of curiosity and obsession. My Pre-MFA work was largely documentary. I took high fidelity images of nebulae and galaxies in deep space. These astrophotographs were intended to pose the question of our place in the vastness of the universe. What do we mean within the context of immense scale and unfathomable time? What the observer sees in this work reflects only what they bring. The abstract forms created by the interplay of gravity and radiation have vastly

different meanings. Some see God, some emptiness, some science. When faced with reality, we all see something different.

With respect to my technical toolbox, my current work is an outgrowth of these early astrophotographs. A telescope is essentially a microscope for things very far away. To create these images, I collect hundreds of “sub-exposures” and stack these on top of one another to increase the signal to noise ratio. I then take overlapping frames of a region of the night sky to create a composite image. This allows me to print these images big enough to immerse the viewer in the detail of the scene. In my current work I use much the same process. Small objects are imaged at close range hundreds of times at different focus points. These are “focus stacked” to create a field of view that is all in focus. I composite multiple overlapping fields of view to create a final super-resolution image that can be printed at large scale. In both bodies of work, I expand upon what the human eye can see to allow the viewer a more immersive experience with the object imaged.

My current work can most easily be considered typological in nature. Creating typologies is exactly what Carl Linnaeus did in the 1700s to create the first taxonomies of plants. He meticulously sketched specimens, putting his drawings side by side to compare the plants being studied. Typologies have a long history in photographic practice. Early typologies revealed the darker side of human nature. Francis Galton (Cousin of Charles Darwin) and Nazi Doctor Josef Wastl attempted to use portraits of different populations of people to determine the diagnostic characteristics for criminals (F. Galton) and Jews, respectively (F. Galton). These “scientists” were endeavoring to justify racism using the same science developed by

Linnaeus. In the hands of artists “photographic typology has the ability to reshape perception, heighten and focus attention, and transform everyday objects into a thing of art.” (Paul Davis). Artists such as designer James Reynolds in his work “Last Supper” (2009) have effectively used the cold grid of common in typologies to bypass visual bias in representing death row prisoners only by a picture of their last choice in a meal. The geometry of orange food trays containing last meals is repeated with profound emotional impact for the viewer. Many artists have utilized typological methods to highlight the beauty in everyday objects; Taryn Simon “Contraband” (2010) studies of items seized the border, Lalage Snow “We Are The Not Dead, Returning by the Road We Came” (2010), portraits of soldiers over their deployments, and Bernd and Hilla Becher “Typology of Watertowers” (1972).

It is not surprising given my scientific background and my life-long need to collect objects that I’m working in typologies. I am drawing on these strengths to explore issues of memory and the re-formation of self. Acknowledging that many of my weaknesses are my strengths taken to extremes, I remain open to exploring other modalities and mediums in developing my artistic voice. My goal is to develop based in intrinsic motivators. The exploration inherent in artistic practice will facilitate my discovery of those motivators and provide the tools for meaningful and impactful artistic expression.

Now: looking back

This was a period of rapid exploration to find my new self out of what remained from my previous life. I revisited collections I’d made in the recent past: beach stones, feathers found in the woods, and the detritus from the forest floor. These started out

very technical; complex composites of thousands of images of the object to create super high-resolution images for large format printing.



Figure 5. Title: Stones. A typology of stones I collected on my numerous trips to the coast of Maine 2008-2016 (in the Joyner Library collection)



Figure 6. Title: Feathers. A typology of Feathers collected on walks in the Sandhills region of North Carolina 2017-2018 (In the Joyner Library Collection)

These typologies were still rooted in the scientific method. There was discovery and joy in the technical aspects but little play. I needed to replace some of the technical with my hands and “make” the photograph. I returned to the history of photography and with the help of my mentors (Wells & Raftery) discovered Van Dyke. Here was the synthesis I was looking for: merging collection with making. In my series “Mesocosm” I restricted my collection to my own yard over the course of a year (see figure 7 for examples). I photographed the forest detritus and created digital negatives to create 16”X20” contact prints using hand brushed Van Dyke solution.



Figure 7. Three examples from my Mesocosm series, “16x20” VanDyke on paper

In these works, I first began to replace the technical scientist with someone that celebrates both play and discovery.

That one summer in 2019

My journey into play found me in the rain in a tent in central New York. John Coffey runs wet-plate collodion workshops on his off-the-grid farm over the summers and I signed up via snail mail to be there and learn with a few others. I initially wanted to learn wet-plate photography because it was enchanted with the haunting portraits from the past as well as the more recent super detailed versions using high powered flashes. The week in a wet tent was a success—I learned how Coffey made wet-plates on his farm. When I returned home that success turned to frustration as I could not replicate what I “learned.” It took me another 2 years to unlearn some of what I was taught and develop a reliable method for doing wet-plate photography in my own home studio. I

accomplished my goal and took portraits of the ones I love. Where else could I use this newfound skill and the new appreciation for the uncontrolled elements of my hands and fickle chemistry. Perhaps people are not the only animals worthy of portraiture?

CHAPTER 4: REPLACING WHAT IS LOST

“Type Specimen”

(Definition)

A species is described by scientists based on description and observation of a “Type” specimen that acts as the “name bearer” for that species. This specimen is used as a reference point for comparison to other specimens to determine if they belong to the same species. Type specimens are catalogued and usually kept in a museum or other collection where scientists can access it (The Amateur Entomologists' Society).

Different sorts of 'primary' Type specimen exist, two are:

Holotype - a single specimen that is the name bearer of the species.

&

Neotype - a specimen selected to act as the holotype for a species after the species was first described and the original holotype was lost or destroyed.

Holotype

Benign neglect is an algorithm that does not come with a shiny screen or an engineered sequence of reassuring dopamine rushes. It does not demand attention or commodify consciousness. It waits for the unknowing child of distracted parents. In the sparse room, in the empty field, in the ditch, the spaces where children roam without the fences of adult attention. It is everywhere fragile. Endangered by new, better, and safe algorithms aimed at the child by good intentions.

Before I grew too tall to clearly see the ground benign neglect was the open-ended algorithm that shaped my interactions with the natural world. Out of the house away from the cries of my younger siblings I'd roam. Climbing fences, opening closed doors, peering down abandoned wells, spelunking the irrigation pipes running under the

road, poking at dead carcasses, and stuffing overalls with my finds. More than once my collections were thrown away. I still feel the loss of some of those things. Insignificant to adults but full of meaning and curiosity for a child brought up on benign neglect.

Why I was drawn to collecting is unknown. Perhaps it was the rows of books in the library, the arrays of fruit in the grocery store, or early visits to museums. Maybe it was the need to “own” things that my four siblings could not claim as theirs. However, one thing evaded my early collections. Insects had minds of their own. Possessing them was a kidnapping and an untimely death. I did not have the “technology” to collect them. Rather they taught me that they were most interesting when I left them alone in nature and quietly watched them. Throwing a grasshopper into a spider’s web. Crawling behind a trail of ants to their mound. Following the scalloped edges of leaves looking for caterpillars munching and pooping their way along. Insects were a part of nature not collected. They were everywhere to be found if you knew what to look for. I found them through understanding their behavior and their ways of living. I came to “know” another way of living through learning from the insects.

However, this fragile childhood algorithm was shattered by “THORO” Spot remover. Watching me run around her farm chasing bugs grandma thought it would be a good idea to teach me how to make a “killing” jar so I could start a proper insect collection. So, my living companions were gassed, frozen into unnatural contortions by the chemical cocktail, and skewered by a pin to be put under glass in my new collection. I now had the proper technology to plug into the world of science. No more were my collections the random things I found but they became methodical. I wanted to collect

each type of insect I'd known and those that I had yet to meet. Forays where about filling a killing jar and adding to categories I'd learned about in books.

I'm grown now. A scientist. Still collecting insects. Now better understanding what was lost and what algorithms influence my development and thinking. I think about how the world has changed.

How science reduces to explain.

How our chemistry has reshaped the world.

How we can capture what is lost without even knowing what is gone.

How putting the world in collections fails to tell us about the ways of living.

How we remember.

How we replace what is lost?

In seeking to understand these and other questions I find myself going back to those early moments. How I transitioned from different ways of knowing to conform to the algorithms of science. How the lens of history tells the story that mirrors my own and my relationship with insects. How the narrative of our relationship with insects touches on our cultural relationship with the beings that share our world.

In "Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants" Robin Wall Kimmerer writes of the fact that her indigenous language does not make pronoun distinctions between male and female but does

distinguish between the living and the non-living. No living thing is referred to as “it” only “they”, she writes:

“...grammar is just the way we chart relationships in language. Maybe it also reflects our relationships with each other. Maybe a grammar of animacy could lead us to whole new ways of living in the world, other species a sovereign people, a world with a democracy of species, not a tyranny of one...” (Kimmerer)

As a child I thought of insects as they and them. They had lives that I watched and learned from. They had places they lived and things they did. They had joys and sorrows. I can't help but think that this is how insects were viewed before science. As living companions in the world with their own motives and ways of living. Sometimes teacher, sometimes food, sometimes pest but always living their own lives in a world they were connected too.

Just as my insect world collided with the introduction of the killing jar the world of indigenous pronouns for insects was superseded by the objectification of nature by modern taxonomy and the colonialization of the world by western culture. Carl Linnaeus (1707–1778) remains at the forefront of my mind, the Swedish botanist devised a binomial method of naming all species using Latin (Linnaeus). The language of science and a tongue only known by a select few gave names to all the known living beings. These names were not meant to grant respect but aimed and slotting these creatures into groups by relationship. Their structure suggested that to know the living world meant that it must be collected and categorized. The elite gentlemen of the age quickly realized that notoriety was to be had based on the size of one's collection. Moreover, finding something new gave them the right to name that species for all time supplanting

any indigenous knowledge and putting their scientific legacy on firm ground. They would possess the Holotype for that species and in a way own it forever. The father of the theory of evolution, Charles Darwin, was the epitome of this new algorithm for approaching the world. In a telling moment he recounts one of his own adventures in insect collection (F. Darwin):

“I will give a proof of my zeal: one day, on tearing off some old bark, I saw two rare beetles, and seized one in each hand; then I saw a third and new kind, which I could not bear to lose, so that I popped the one which I held in my right hand into my mouth. Alas! it ejected some intensely acrid fluid, which burnt my tongue so that I was forced to spit the beetle out, which was lost, as was the third one.”

He was a part of his age and became an icon of science. During his voyage as the naturalist on the HMS Beagle (1831-36) Darwin developed his theory. The true goal of the refitted warship was to survey the lands of South America in service of colonial aspirations, but it was legitimated by the scientific aspects through Darwin’s collection and categorization of the natural world. The cargo hold was stuffed with Darwin’s finds destined for museums and private collections (C. Darwin). The colonial and the scientific were each a side of the same imperial coin.

While Darwin was at sea Louis Daguerre was hard at work developing the first successful photographic process: the daguerreotype. Just as Carl Linnaeus had captured and collected the living world using the Latin language. The photographic process captured “objective reality” and became its own language. The photograph became the stand-in for the visual understanding of a thing. A two-dimensional plane of photosensitive substrate became data for the scientist and replaced the natural context of a specimen with the constructed space of a photo studio. With specimens striped of

context and the mass production of photographs the science of typologies burgeoned. Typology as “the study of or analysis or classification based on types or categories (Merriam Webster)” was difficult in the sequestered collections of the well-to-do, but photographs opened it to more practitioners. I’m reminded again of Francis Galton (Darwin’s half-cousin) who used photography to create typologies of “diseased types” and the “criminal types” to identify individuals that he deemed unfit to reproduce (F. Galton) (F. F. Galton). Photographs allowed scientist and citizen alike to “own” something, to manipulate it, to store it away by category, to collect all the types, to share. The photograph was everywhere, almost.

Ironically insects resisted the photographic revolution. The physical and chemical limitations of early photography made taking pictures of small insects extremely difficult. Those crude pictures were no match for the actual specimen and were not scalable to the millions of insects already collected. Indeed, photography was important for the examination of these insects but grand efforts at typological studies were limited. They still resist. Even with the advent of digital photography, physical limitations still exist, each insect requires enormous human and computational effort to prepare and photograph. An endeavor beyond the patience of the modern scientist looking for fast-paced discovery.

The Exhibition

Each of these works starts with an insect I’ve collected and carefully preserved. As a scientist I wonder at the beauty of these specimens as I focus up and down under the microscope creating a complete image in my mind of the whole insect.

To share this image with the viewer I take thousands of frames of each insect and create a super resolution digital composite. Insects are not digital. Converting the digital



Figure 8. *Rosalia lameerei* (longhorn beetle) 8"X10" wet plate collodion, one of 23 works in the show framed in a 12.5"x14.5"X4" frame with side illuminating LED lights that are controlled by a bottom mounted motion sensor and a fade-on fade-off controller.

back into the analog I use the old process of wet plate collodion. Chemistry swirls and takes on a life of its own that results in a one-of-a-kind object that celebrates and remembers insects.

Exhibited in a darkened galley lining the walls are boxes of insects. As you approach, each slowly comes to life as the light within each box slowly intensifies. As you turn away the light fades to nothing. Each of the 23 works is a insect from my collection rendered in 8x10 wet plate collodion. Collected over a lifetime and



Figure 9. View of one wall in the gallery. Power cords are not visible for each of the works. Power is supplied via copper foil tape that is affixed to the wall and painted over.

memorialized/celebrated in the gallery each one glows in silver and light. Each demand that the discoverer take a moment to watch it animate to reveal its character and beauty. Some who enter will rush from one to another turning each light on to fill the room with their reflected light others will be bathed in a moment of light with each one. These are the various reactions that a child brought up on benign neglect has in nature—run to discover and crouch to wonder. Curiosity is what I hope others will

experience. Mix this with a wonder for these insects and a bit of sadness knowing that they are disappearing from our world.

Neotype

I'm still a scientist but also an artist. Still collecting insects. Asking the same questions but with new ways of knowing. I understand the power of reductive thinking, but it fails to explain the way I feel. I see how our invention of chemistry has decimated the natural world and deprived us of our insect companions. I ask myself what I am missing with my trained eye as I walk through the woods. I question how collection can tell me and others about the ways our insect companions live. I know that science is not the way we remember it is only the way we document, these are not the same. With all this swirling in my mind I create my artistic practice. Borrowing the now ancient chemistry of early photography and merging it with modern digital techniques I document my insects in art so that I will remember them. I seek to create a ritual of engagement with my work that evokes the sense of wonder I felt as a child as I conversed with the insects but comments on the way science puts the living world in boxes. It seeks a new way of knowing by creating a conversation between wonder and reductionism. A conversation between the past and the future of these disappearing creatures of wonder. And, for me, a conversation between my holotype and my neotype.

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APPENDIX A: Cyanotype over Pigment printing

Tim Christensen 01/22/2019

Adapted from: <http://picturesbyhand.blogspot.com/2017/05/process-obsession.html>

and input and inspiration from: Aspen Hochhalter <https://aspenhochhalter.com/home.html> Overview:

You are going to replace the blacks in a digital color image with cyanotype.

Creating the digital image minus Black

1. In Photoshop go to “Edit” → “color settings”. Select CMYK and click on “custom” Create a custom profile using “SOP (coated), 20%, GCR, Maximum” You will need to select maximum from the “Black Generation” drop down Menu. Leave all other presets alone. (This usually needs to be done once just make sure that you check it each time you do it.)
2. Open your digital image and convert the color space to CMYK. Select “Image” → “mode” and select CMYK
3. Go to “channels” and delete the “Black” layer.
4. Convert back to RGB color space. Select “Image” → “mode” and select RGB
5. Save your image as a new file.
6. Print your image on the paper you will be using for the cyanotype.

Creating the digital negative

1. Open your original image and convert the color space to CMYK. Select “Image” → “mode” and select CMYK
2. Go to “channels” and select the “Black” layer.
3. Go to “Image” → “Mode” and convert to grayscale. This will discard the other layers.
4. Go to “Image” → “Mode” and convert to RGB
5. Go to “Image” → “Image Rotation” and Flip Horizontal.
6. Go to “Image” → “Adjustments” and invert the image.
7. Go to “Image” → “Adjustments” → “Curves” and select the “Darken” present from the drop down menu. Click Ok (note you may determine your own curve adjustment, I’ve found this works best for me)
8. Print the negative on transparency.

Putting them together

1. Take the digital print and coat with cyanotype formula.
2. Dry

3. Align the negative and expose.
4. Process as for cyanotypes.

